

ABSTRACT OF THE DISCLOSURE

[0080] The present invention generally relates to filling of a feature by depositing a barrier layer, depositing a seed layer over the barrier layer, and depositing a conductive layer over the seed layer. In one embodiment, the seed layer comprises a copper alloy seed layer deposited over the barrier layer. For example, the copper alloy seed layer may comprise copper and a metal, such as aluminum, magnesium, titanium, zirconium, tin, and combinations thereof. In another embodiment, the seed layer comprises a copper alloy seed layer deposited over the barrier layer and a second seed layer deposited over the copper alloy seed layer. The copper alloy seed layer may comprise copper and a metal, such as aluminum, magnesium, titanium, zirconium, tin, and combinations thereof. The second seed layer may comprise a metal, such as undoped copper. In still another embodiment, the seed layer comprises a first seed layer and a second seed layer. The first seed layer may comprise a metal, such as aluminum, magnesium, titanium, zirconium, tin, and combinations thereof. The second seed layer may comprise a metal, such as undoped copper.